

Origin of plants in  
Key to cultures of A of table 2

Culture 7456: From kernels on first ear of main stalk of plant 7109B-1.

Cross: 7109B-1  $a_2^{m-1}$  (class II)  $Bt/a_2$   $bt$ ;  $wx +/wx$  Spm ♀ x  $a_2$   $bt/a_2$   $bt$ ,  $wx/wx$ , no Spm ♂

Plants in B: From uniformly darkpigmented, Bt, wx kernels

C: From diffuse-mottled, Bt, wx kernels

D: From colorless, Bt, wx kernels with <sup>small</sup> spots of deep ~~deep~~ pigment.

E: From uniformly pigmented, bt, wx kernels.

Culture 7600: From uniformly deep pigmented kernels on ear of tiller of plant 7456C-3.

Cross:  $a_2^{m-1}$  (class II)  $Bt/a_2$   $bt$ ,  $wx +/wx$  Spm ♀ x  $a_2$   $bt/a_2$   $bt$ ,  $wx/wx$  no Spm ♂

Culture 7598: From uniformly dark pigmented kernels on ear of main stalk of plant 7456D-5

Cross:  $a_2^{m-1}$  (class II)  $Bt/a_2$   $bt$ ,  $wx +/wx$  Spm ♀ x  $a_2$   $bt/a_2$   $bt$ ,  $wx/wx$  no Spm ♂

Culture 7599: From kernels on ear produced by cross of  $a_2$   $bt/a_2$   $bt$ ,  $wx/wx$ , ♀ no Spm ♀ x 5456D-5 ♂ (see culture 7598)

xxxxxxxxxxxxxx77789xxxxxxxxxxxxxxxxxxxx7599

Plants in A from diffuse-mottled, Bt, wx kernels

Plants in B from colorless, Bt, wx kernels with spots or specks of pigment

Culture 7780: From kernels on first ear of main stalk of plant 7599B-4

Cross:  $a_2^{m-1}$   $Bt/a_2$   $bt$ ,  $wx +/wx$  Spm ♀ x  $a_2$   $bt/a_2$   $bt$ ,  $wx +/wx$  Spm ♂

Plants in A from colorless, Bt, wx kernels showing few specks of pigment

Plants in B from colorless, Bt, wx kernels showing large and small pigmented areas.

Table 5.

Type of pollen Parent in Cross to

Type of tester used  
for parent

|      | Constitution of plant as<br>determined by test crosses. | Flour ear  | ear ear    | ear of   | ear 4    | ear of   | pollen   |
|------|---|------------|------------|----------|----------|----------|----------|
|      |   | Main stalk | Main stalk | Tiller-1 | Tiller-2 | Tiller-3 | To plant |
| 7456 |   |            |            |          |          |          |          |
| A-1  | w+w+  | No Spur    |            | 3        | 2        | 1        |          |
| A-2  | w+w+  | No Spur    |            | 3        |          |          |          |
| A-3  | w+w+  | No Spur    |            | 3        |          |          |          |
| A-4  | w+w+  | (No Spur)  |            |          |          |          |          |
| B-1  | w+w+  | No Spur    |            | 3        |          |          |          |
| B-2  | w+w+  | No Spur    |            | 3        |          |          |          |
| B-3  | w+w+  | No Spur    |            | 3        |          |          |          |
| B-5  | w++  w+w  | Spur       |            | 3        |          |          |          |
| B-6  | w+w   | No Spur    |            | 1        |          |          |          |
| E-1  | w+w+  | No Spur    |            | 2        |          |          |          |
| E-3  | w+w+  | No Spur    |            | 1        |          |          |          |
| E-2  | w+w+w   | Spur       |            | 3        |          |          |          |
| C-1  | w+w+  | 1 Spur     |            | 3        |          |          |          |
| C-2  | w++  w+w  | Spur       |            | 3        |          |          |          |
| C-3  | w++  w+w  | Spur       |            | 3        | 2        |          |          |
| C-4  | w++  w+w  | Spur       |            | 3        | 2        |          |          |
| D-1  | (w++  w+w)  |            |            | 1        |          |          |          |
| D-2  | (w++  w+w)  |            |            | 1        | 1        | 1        |          |
| D-3  | (w++  w+w)  |            |            | 1        |          |          |          |
| D-4  | w+w+  | 1 Spur     |            | 1        |          |          |          |
| D-5  | w+w+  | 1 Spur     |            | 1        | 2        | 2        |          |
| D-7  | w+w+  | 1 Spur     |            | 1        | 1        | 2        |          |

Heads

See Table 2 #1)

R. Test Crosses conducted with plants in Cultars 7456 (derived from selected kernels on ear of plant 7109 B-1.)

## Constitution of the water plants:

$$1 = a_{\text{left}}/a_{\text{right}} \approx w_1/w + \text{no spec}$$

$$z = \begin{pmatrix} a_2 b_2^* / |a_2 b_2^*, & a_1 b_1^* / |a_1 b_1^* & \text{no Span} \end{pmatrix}$$

$$3 = \left| a_2 b t / a_1 b t \right| \left| \ln t + \frac{1}{t} \ln \ln t \right| \text{Span} - a$$

3 =  $a_2 b t / a_1 b t$        $m_1 + m_2$       spin-active phase (either planet 7B or D-1 or D-2)

Plants in A, B, and E of culture 7456 derived from unfermented seed.

## Key to Table 2.

A of Table:

7109B-1 ear I, main stalk  $\text{Q}_2^{(m)}$  (class II) BT/ $\text{Q}_2^{(s)}$  Wx + no spm  $\times \text{Q}_2^{(b)}$  Wx/ $\text{Q}_2^{(b)}$  Wx, spot or

Plants in A few

BT Wx

$\text{Q}_2^{(b)}$

Wx/ $\text{Q}_2^{(b)}$  Wx, spot or

7456B, form mostly pigmented leaves

" C from diffg - mottled BT Wx "

" D " colorless BT Wx leaves, with small spots of pigment in them

" E " hyperpigmented BT Wx leaves. (class II)

7600. From cross of 7456C-3,  $\text{Q}_2^{(m)}$  BT/ $\text{Q}_2^{(s)}$  Wx + / no spm  $\times \text{Q}_2^{(b)}$ / $\text{Q}_2^{(b)}$  Wx/ $\text{Q}_2^{(b)}$  Wx, spot or

Plants derived from colorless BT Wx leaves with a number of spots of pigment in them

7598. From cross of 7456D (class II)  $\text{Q}_2^{(m)}$  BT/ $\text{Q}_2^{(b)}$  Wx + / no spm  $\times \text{Q}_2^{(b)}$ / $\text{Q}_2^{(b)}$  Wx/ $\text{Q}_2^{(b)}$  Wx, spot or

Plants derived from fully pigmented BT Wx leaves.

7599 From cross of  $\text{♀ Q}_2^{(b)}$ / $\text{Q}_2^{(b)}$ , Wx/Wx no spm  $\times$  7456D (class II).

Plants in A derived from diffg - mottled BT Wx leaves

" " B " " colorless leaves with few spots and dots of pigment.

7580. See page - III text for origin of plants in this class

From cross of 7599B (class II) Wx + Wx no spm  $\times \text{Q}_2^{(m)}$  (class II) BT/ $\text{Q}_2^{(b)}$ ,  $\text{♀ } \times 7538-14 \text{ Q}_2^{(b)}$ / $\text{Q}_2^{(b)}$  (class II)

A = From var. never was true red spm noted + pigment never in colorless leaves

Wx + Wx no spm

B = From .. " " larger + smaller spots of pigment in colorless background

Cultivar 7306 From 7109B (class II)  $\text{Q}_2^{(m)}$  (class II) BT/ $\text{Q}_2^{(s)}$  Wx + / no spm  $\times$   $\text{Q}_2^{(b)}$ / $\text{Q}_2^{(b)}$ , Wx/Wx no spm (class II).

Plants in A derived from colorless BT Wx leaves with a number of spots of pigment

" " B " " " " with only a few spots of pigment.

7560 From cross of 2nd son, main stalk of plant 7306A-1, ♀

$\text{Q}_2^{(m)}$  (class II) BT/ $\text{Q}_2^{(b)}$  Wx + / no spm  $\times \text{Q}_2^{(b)}$ / $\text{Q}_2^{(b)}$ , red/leaf no spm (class II)

Plants derived from colorless BT Wx leaves with a number of small pigmented

spots.

C, Table 2

7307 From 7109 B-1, tiller-2:  $a_2^{m-1}$  (class II) BI/ $a_2$ , W<sub>x</sub>+/ew Spur ♀ ×  $a_2$ , W<sub>x</sub>+/a<sub>2</sub>b<sub>1</sub>, W<sub>x</sub>/W<sub>x</sub> no spur ♂.

Plants in A derived from ~~the~~ <sup>one</sup> coblets BI W<sub>x</sub> leaves with a number of small spots of pigment.

Plants in B derived from coblets B-2 W<sub>x</sub> leaves with <sup>only</sup> small spots of pigment in them.

7561. From 7307 A-3:  $a_2^{m-1}$  (class II) BI/ $a_2$ , W<sub>x</sub>+/ew Spur ♀ ×  $a_2$ , W<sub>x</sub>+/a<sub>2</sub>b<sub>1</sub>, W<sub>x</sub>/W<sub>x</sub>, no spur ♂.

Plants derived from coblets BI W<sub>x</sub> leaves with a number of small spots of pigment.

7562 From first ear, main stalk of plant 7307 A-5:  $a_2^{m-1}$  (class II) BI/ $a_2$ , W<sub>x</sub>+/ew Spur ♀ ×  $a_2$ , W<sub>x</sub>+/a<sub>2</sub>b<sub>1</sub>, W<sub>x</sub>/W<sub>x</sub>, no spur ♂.

Plants derived from coblets, BI, W<sub>x</sub>, leaves with a number of small pigmented spots.

7572 From second ear, main stalk of plant 7307 B-2:  $a_2^{m-1}$  (class II) BI/ $a_2$ , W<sub>x</sub>+/ew Spur ♀ ×  $a_2$ , W<sub>x</sub>+/a<sub>2</sub>b<sub>1</sub>, W<sub>x</sub>/W<sub>x</sub>, no spur ♂.

Plants derived from coblets, BI, W<sub>x</sub>, leaves with few spots of pigment.

7447 See text, page -, for description of ~~the~~ origin of plants in this section

D, table 2

7312 From cross of  $\alpha_2^{m1}$  (class I) BI/ $\alpha_2^{bt}$ , Wx/w<sub>1</sub> w<sub>2</sub> Spur f × 7109 B-1 ♂  
Plants derived from BI W+ brevis hairy <sup>batt</sup>,  $\alpha_2^{m1}$  (class I) and  $\alpha_2^{m1}$  (class II)  
~~state~~ and Spur.

7313 From cross of  $\alpha_2$  BI/ $\alpha_2^{bt}$ , Wx/w<sub>1</sub> w<sub>2</sub> Spur f × 7109 B-1 ♂  
Plants in A<sup>B</sup> derived from ~~W~~ <sup>colored</sup> BI W+ brevis with some pigmented spots +  
spurs.

7547: From cross of plant 7312 ♂:  $\alpha_2^{m1}$  (class I) BI/ $\alpha_2^{m1}$  (class II BI,  
W+ / w<sub>1</sub> w<sub>2</sub> Spur f ×  $\alpha_2^{bt}$ / $\alpha_2^{bt}$ , w<sub>1</sub>/w<sub>1</sub>, w<sub>2</sub> Spur ♂.  
Plants in A derived from non-pigmented BI W+ brevis hairy class I state of  $\alpha_2^{m1}$   
Plants in B+C " colored BI W+ brevis with ~~some~~ small spots of pigment.  
and carry the class II state of  $\alpha_2^{m1}$ .

7582 From 7312-6 I ♀ ×  $\alpha_2^{bt}$  W+ w<sub>2</sub> Spur ♂  
 $\alpha_2^{m1}$  (A) BI/ $\alpha_2^{bt}$  W+ / w<sub>1</sub> w<sub>2</sub> Spur  
A: from Collees, RI, W+ brevis with small spots of pigment (class I state)  
B: from ~~Collees~~ <sup>W+ w<sub>1</sub></sup> <sup>colored (class I state)</sup> BI W+ brevis with small w<sub>2</sub> spots. (fa  
W<sub>2</sub> is constitutive of plant.)

included in report  
6638B(6) + 6669C  
6644(7) + 6669C

6644(8) + 6662C

6644(10)T + 6669C

6648(3) + 6669C

6649A(2) + 6669C

6652B(3) + 6678

6655A(3)T + 6680D

6655B(1) + 6690

6666D(4)T + 6655B(2)

6683A(3) + B + D

6655C(2)T + 6670

6662B(4) + D(10)

" B(5) + "

" D(10) + D(6)

6661B(3)T + 6673A(1)

" " (1) + " " "

6665F(3) + 6678

6660(9) + 6666ET

6666B(1) + "

6669C - see card for others with 6670B(3)

6670C(7)T (7)

6672E(12)T + 6638A(3) neutron or

6673n(3) + 6704C(3)

6703 - charged states spin-w. Frequency 1 KHz.

6673C<sub>(1)</sub> + 6662C

6673F - cons. - see card

6675G Cons. - see card (to 6704B<sub>(2)</sub>, 6680E<sub>(6)</sub>, 6651B<sub>(3)</sub>)

6680D Cons. (6665B<sub>(5)</sub><sup>t</sup>, 6704C<sub>(1)</sub>, C<sub>(1)</sub>', 6670A<sub>(2)</sub>, 6655A<sub>(2)</sub>, 6651AC<sub>(2)</sub>)

6680E<sub>(1)</sub><sup>t</sup> + 6675G

6683D<sub>(2)</sub><sup>t</sup> + 6641A<sub>(5)</sub> sector

6685 - delayed return spm

6687A<sub>(1)</sub> + 6673F

6688C<sub>(8)</sub><sup>t</sup> + 6702<sub>(2)</sub> Imp

6690 Cons. (6665A-2, 6665B<sub>(4)</sub>, 6670A<sub>(4)</sub><sub>(5)</sub>, 6655C-2)

6691B<sub>(1)</sub><sup>t</sup> + 6701<sub>(2)</sub> -  
(5719A<sub>(2)</sub>) (5700A)

6692B<sub>(3)</sub><sup>t</sup> + 6701<sub>(1)</sub>

6693A<sub>(1)</sub> + 6702<sub>(7)</sub>

" A<sub>(2)</sub> - see card (to 6664A<sub>(1)</sub>, A<sub>(4)</sub>) + others

6664B<sub>(3)</sub><sub>(9)</sub><sup>t</sup> + 6693A<sub>(2)</sub>

6694B<sub>(7)</sub> - pollen from pale + var. sectors I Imp

6697<sub>(5)</sub><sup>t</sup> + 6678

6698<sub>(2)</sub><sub>(4)</sub><sub>(5)</sub> x

Lumage of Spm with pr - 6698

6704B<sub>(3)</sub><sup>T</sup> + 6675 6

" B<sub>(4)</sub> + 6678 - good, unk

" C<sub>(1)</sub> + 6680 D

6673B<sub>(2)</sub> + 6704C<sub>(3)</sub>

6704C<sub>(4)</sub><sup>T</sup> + 6666 E<sup>tw</sup>

6707A<sub>(3)</sub><sup>T</sup> + 6638A<sub>(1)</sub> Sectorial lar.

6679 B<sub>(3)</sub> + 6707C<sub>(3)</sub>

6707D + 6702<sub>(1)</sub> - 6676 see under 6707

6679B<sub>(3)</sub> + 6707C<sub>(3)</sub>

6656 U<sub>(4)</sub> + 6655E<sub>(2)</sub> - unk.

$a_1^{(M-1)} a_1 b_2$   
no open

$a_1^{(M+1)} a_1 b_2$  Spec

| 6675G                                    | 6662C   | 6669C   | 6678  | 6666E  | 6673F   | 6680D   | 6690  | 6671E   |
|--|---|---|---|--|---|---|---|---------|
| 6651B-5<br>6640E-6<br>6704B-3<br>6707C-2 | 6644-8<br>6673C-1<br>6704C-9<br>6704C-10<br>6707C-4 | 6638B-6<br>6644-2<br>6644-10<br>6648-3<br>6649A-2 | 6651B-3<br>6652B-3<br>6652B-5<br>6665E-2<br>6665E-3 | 6638A-3<br>6651A-1<br>6660-9<br>6661-19<br>6662E-2 | 6675B-1<br>6675B-2<br>6683H-4<br>6685C-1<br>6685C-2 | 6651A-3<br>6655A-3<br>6664A-3<br>6665B-5<br>6670A-2 | 6655B-1<br>6655C-2<br>6665B-2<br>6665B-4<br>6670A-4 | 6639-22 |

Tests of Spec - other stake -

air under airship - To states other than 57197-1

" " 1 Spec - to poles "

Summer 1954

Mutants

A<sub>1</sub> mutants

6638 B - 6

6649 H - 4

6650 H -

6653 B - 1

6654 - 2

6654 - 3

6706 B - 3

Pale mutants - from state 5720.

6651 A - 1

" A - 3

6655 A - 1 To 4

" B - 1 - 2.

The plants from pale *Aster*  
Pale " " var. *brevifl.*

Summer 1954

Pale, from var. herz.

<sup>part</sup>  
over, from pale brown

| Plant   |  |  |  |                 |  |  |
|---------|--|--|--|-----------------|--|--|
| 6673D-2 |  |  |  | 6641B-4 (run 8) |  |  |
| 6676B-5 |  |  |  | 6683A-2         |  |  |
| 6685F-2 |  |  |  |                 |  |  |
| 6686D-3 |  |  |  |                 |  |  |
| 6688A-5 |  |  |  |                 |  |  |

Hannay's airmail + <sup>14</sup>  
Hannay's airmail tented      Summer 1958

6638 B ③ B ④ B ⑤ [B ⑥] B ⑦ state 5718

6648 ③ ④ ⑤

6658 state 5719A-1

6662 D ② D ⑨

6664 B ③ B ⑨

6703 #① state 5700A / 5719A-2

" ⑥

" B ②

" C ⑤

6706 A ③, A ④ A ⑤ airmail state 5999

From  $T_{\text{sum}}(y + \text{param})$ .

| ♀           | ♂†       |  | Palo            |                 | Van.            |                 |                 |                 | Colorless       |                 | %  |     |
|-------------|----------|--|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----|-----|
|             |          |  | sh <sub>2</sub> | sh <sub>3</sub> |    |     |
| 6662D-1     | 6632-9   |  | 34              | 48              | 0               | 0               | 69              | 30              | 0               | 0               | 14 | 181 |
| " D-8       | " -4     |  | 34              | 66              | 0               | 2               | 62              | 32              | 2               | 1               | 0  | 166 |
| 6662E-3     | 6638A-5  |  | 62              | 115             |                 |                 | 91              | 64              |                 |                 |    |     |
| 6662E-4     | " -7     |  | 15              | 45              |                 |                 | 45              | 14              |                 |                 |    |     |
| " E-9       | " "      |  | 14              | 35              |                 |                 | 25              | 11              |                 |                 |    |     |
| 6664C-2     | " 1      |  | 71              | 102             |                 |                 | 102             | 68              |                 |                 |    |     |
| " C-4       | " -4     |  | 36              | 110             |                 |                 | 129             | 45              |                 |                 |    |     |
| 6665E-2     | " 7      |  | 39              | 96              |                 |                 | 95              | 23              |                 |                 |    |     |
| " E-3       | 6632-23  |  | 25              | 43              | 0               | 0               | 39              | 21              | 0               | 0               | 0  | 139 |
| " E-4       | 6638A-1  |  | 84              | 152             |                 |                 | 144             | 74              |                 |                 |    |     |
| " E-5       | " "      |  | 66              | 131             |                 |                 | 135             | 80              |                 |                 |    |     |
| " E-6       | " "      |  | 61              | 90              |                 |                 | 106             | 75              |                 |                 |    |     |
| " G-2       | " -3     |  | 81              | 130             |                 |                 | 126             | 73              |                 |                 |    |     |
| " G-3       | " -1     |  | 78              | 102             |                 |                 | 107             | 72              |                 |                 |    |     |
| " G-4       | " -1     |  | 70              | 143             |                 |                 | 135             | 88              |                 |                 |    |     |
| " G-5       | " 4      |  | 18              | 49              |                 |                 | 50              | 14              |                 |                 |    |     |
| " G-6       | " "      |  | 43              | 166             |                 |                 | 105             | 43              |                 |                 |    |     |
| " G-7       | " "      |  | 85              | 145             |                 |                 | 121             | 65              |                 |                 |    |     |
| 6666C-2     | 6632-18  |  | 40              | 74              | 0               | 0               | 71              | 41              | 0               | 0               | 0  | 227 |
| " C-3       | " -16    |  | 34              | 62              | 0               | 0               | 50              | 31              | 0               | 0               | 0  | 211 |
| " C-3       | " -18    |  | 26              | 66              | 0               | 0               | 58              | 22              | 0               | 0               | 0  | 187 |
| " C-4       | " -11    |  | 55              | 74              | 0               | 0               | 56              | 45              | 0               | 0               | 0  | 226 |
| " C-6       | " -18    |  | 29              | 51              | 0               | 1               | 68              | 32              | 0               | 0               | 0  | 214 |
| 6670C-1     | 6632-2   |  | 28              | 65              | 0               | 0               | 66              | 21              | 0               | 0               | 0  | 188 |
| " C-2       | 6638A-1  |  | 34              | 90              |                 |                 | 97              | 57              |                 |                 |    |     |
| " C-3       | 6632-2   |  | 33              | 68              | 0               | 0               | 55              | 37              | 0               | 0               | 0  | 212 |
| " C-5       | " -18    |  | 36              | 77              | 0               | 0               | 76              | 35              | 0               | 0               | 0  | 211 |
| " C-6       | 6638A-5  |  | 53              | 133             |                 |                 | 126             | 41              |                 |                 |    |     |
| " C-7       | " "      |  | 48              | 85              |                 |                 | 55              | 24              |                 |                 |    |     |
| 6673C-3     | 6632-2   |  | 26              | 57              | 0               | 0               | 61              | 33              | 1               | 0               | 0  | 187 |
| " C-3       | 6638A-2  |  | 75              | 115             |                 |                 | 119             | 52              |                 |                 |    |     |
| " C-6       | " "      |  | 26              | 75              |                 |                 | 68              | 31              |                 |                 |    |     |
| " G-3       | 6641B-2  |  | 74              | 112             |                 |                 | 118             | 65              |                 |                 |    |     |
| " G-4       | 6638A-1  |  | 39              | 83              |                 |                 | 75              | 36              |                 |                 |    |     |
| " G-16      | " A-2    |  | 76              | 141             |                 |                 | 129             | 90              |                 |                 |    |     |
| b674F-5     | " A-2    |  | 79              | 136             |                 |                 | 145             | 68              |                 |                 |    |     |
| " F-5       | " A-6    |  | 29              | 93              |                 |                 | 88              | 21              |                 |                 |    |     |
| Y+ / N Spur |          |  |                 |                 |                 |                 |                 |                 |                 |                 |    |     |
| 6630C-6     | 6662D-10 |  | 68              | 37              | 0               | 0               | 26              | 69              | 0               | 0               | 0  | 207 |
| 6632-35     | " "      |  | 55              | 25              | 1               |                 | 9               | 55              | 1               |                 |    | 117 |

6616

| I $\gamma$ Spur $\mu^+ \mu^-$ |          |          | II $\gamma$ Spur $\mu^+ \mu^-$ |                 |                 | III $\gamma$ Spur $\mu^+ \mu^-$ plus $1^{\circ}$ PM |                 |                 |                 |                 |     |
|-------------------------------|----------|----------|--------------------------------|-----------------|-----------------|---|-----------------|-----------------|-----------------|-----------------|-----|
| ♀                             | ♂?       |          | Fate                           |                 |                 | Colorless   |                 |                 | Sh <sub>2</sub> | Sh <sub>2</sub> |     |
|                               |          |          | Sh <sub>2</sub>                | Sh <sub>2</sub> | Sh <sub>2</sub> | Sh <sub>2</sub>                                     | Sh <sub>2</sub> | Sh <sub>2</sub> |                 |                 |     |
| B-1                           | 6634B-1  |          | 73                             | 37              | 0               | 0   | 59              | 35              | 0               | 0               | 200 |
| " B-1                         | 6638A-1  |          | 38                             | 141             |                 |   | 125             | 52              |                 |                 |     |
| " B-2                         | 6632-7   |          | 45                             | 64              | 0               | 0   | 53              | 28              | 0               | 0               | 203 |
| " B-3                         | 6638A-2  |          | 44                             | 137             |                 |   | 99              | 63              |                 |                 |     |
| " B-9                         | " A-7    |          | 49                             | 100             |                 |   | 97              | 44              |                 |                 |     |
| " C-3                         | 6632-7   |          | 50                             | 83              | 0               | 0   | 80              | 35              | 0               | 1               | 266 |
| " C-6                         | 6638A-2  |          | 48                             | 124             |                 |   | 102             | 45              |                 |                 |     |
| " C-9                         | 6634B-10 |          | 20                             | 48              |                 |   | 49              | 19              |                 |                 | 147 |
| " C-9                         | 6638A-2  |          | 38                             | 97              |                 |   | 116             | 37              |                 |                 |     |
| " D-10                        | " 4      |          | 25                             | 63              |                 |   | 60              | 20              |                 |                 |     |
| " E-4                         | " -2     |          | 43                             | 149             |                 |   | 103             | 60              |                 |                 |     |
| <hr/>                         |          |          |                                |                 |                 |   |                 |                 |                 |                 |     |
| <hr/>                         |          |          |                                |                 |                 |   |                 |                 |                 |                 |     |
| <hr/>                         |          |          |                                |                 |                 |   |                 |                 |                 |                 |     |
| II                            | 6676B-6  | 6634B-10 | 6                              | 56              | 0               | 0   | 86              | 40              | 1               | 0               | 151 |
| " 6                           | 6638A-7  |          | 12                             | 108             |                 |   | 139             | 60              |                 |                 |     |
| " B-8                         | 6632-8   |          | 29                             | 59              | 0               | 0   | 78              | 58              | 0               | 0               | 233 |
| " C-2                         | " -34    |          | 1                              | 46              | 0               | 0   | 77              | 33              | 0               | 0               | 201 |
| " C-4                         | 6638A-2  |          | 48                             | 147             |                 |   | 181             | 84              |                 |                 |     |
| " C-10                        | 6632-34  |          | 18                             | 42              | 0               | 0   | 80              | 45              | 0               | 0               | 174 |
| " D-11                        | 6638A-2  |          | 46                             | 75              |                 |   | 173             | 127             |                 |                 |     |
| " E-1                         | " 7      |          | 29                             | 47              |                 |   | 120             | 85              |                 |                 |     |
| " E-2                         | " A-1    |          | 45                             | 98              |                 |   | 126             | 102             |                 |                 |     |
| " E-3                         | " A-2    |          | 10                             | 27              |                 |   | 78              | 68              |                 |                 |     |
| <hr/>                         |          |          |                                |                 |                 |   |                 |                 |                 |                 |     |
| <hr/>                         |          |          |                                |                 |                 |   |                 |                 |                 |                 |     |
| <hr/>                         |          |          |                                |                 |                 |   |                 |                 |                 |                 |     |
| III                           | 6676C-8  | 6634B-10 | 13                             | 45              |                 |   | 89              | 83              |                 |                 | 242 |

Pole

NO2

Molar

CH<sub>2</sub>    NH<sub>2</sub>    CH<sub>2</sub>    NH<sub>2</sub>

| F       | f       |  | 1<br>% | 2<br>% | 1<br>% | 2<br>% | 1<br>% | 2<br>% | CH <sub>2</sub> | NH <sub>2</sub> |                  | % NO <sub>2</sub> |
|---------|---------|--|--------|--------|--------|--------|--------|--------|-----------------|-----------------|------------------|-------------------|
| 6704A-2 | 6678    |  | 40     | 74     | 22     | 35     | 61     | 42     | 42              | 29              | 93               | 38.5              |
| - B-4   | 6632-10 |  | 59     | 70     | 0      | 0      | 70     | 48     | 0               | 0               | 2.45             |                   |
| ✓ B-3   | 6675G   |  | 44     | 58     | 24     | 34     | 57     | 56     | 42              | 24              | 92 (46.1; 46.4)  |                   |
| ✓ B-4   | 6678    |  | 20     | 113    | 70     | 65     | 111    | 30     | 59              | 8               | 149 (77.7; 72.5) | 16.3              |



|      |        |                       |                      |  |  | Spec<br>m | Spec<br>m | Spec<br>m                 |  |
|------|--------|-----------------------|----------------------|--|--|-----------|-----------|---------------------------|--|
|      |        |                       |                      |  |  | ✓ cb.     | Probs     | Labels<br>rec'd<br>by cb. |  |
| 6676 | B to E | 34 plants, see folder |                      |  |  | ✓         |           |                           |  |
| 6679 | E to D | 6 " "                 | " "                  |  |  |           |           |                           |  |
| 6680 | T to B | 16 "                  | " cards              |  |  |           |           |                           |  |
| 6682 | B      | 7 "                   | " folder             |  |  |           |           |                           |  |
| 6683 | G to F | 16 "                  | " "                  |  |  |           |           |                           |  |
| 6684 | H to E | 15 "                  | " "                  |  |  |           |           |                           |  |
| 6685 | F to H | 21 "                  | " "                  |  |  |           |           |                           |  |
| 6686 | E      | 5 "                   | " cards              |  |  |           |           |                           |  |
| 6687 | C to D | 8 "                   | " folder             |  |  |           |           |                           |  |
| 6688 | C      | 11 "                  | " "                  |  |  |           |           |                           |  |
| 6690 | R      | 11                    | - - -                |  |  |           |           |                           |  |
| 6691 | R      | 11                    | - - -                |  |  |           |           |                           |  |
| 6692 | B      | 11                    | - - -                |  |  |           |           |                           |  |
| 6693 | T      | 11                    | - - -                |  |  |           |           |                           |  |
| 6694 | B      | 11                    | - - -                |  |  |           |           |                           |  |
| 6695 | B to D | 5                     | see cards + folder   |  |  |           |           |                           |  |
| 6696 | D      | 11                    | " "                  |  |  |           |           |                           |  |
| 6697 |        | 1                     | " "                  |  |  |           |           |                           |  |
| 6698 |        | 6                     | " "                  |  |  |           |           |                           |  |
| 6703 | H to E | 18                    | see folder           |  |  |           |           |                           |  |
| 6704 | F to C | 9                     | see folder           |  |  |           |           |                           |  |
| 6706 | A + B  | 5                     | see cards            |  |  |           |           |                           |  |
| 6707 | A to D | 11                    | see cards and folder |  |  |           |           |                           |  |

in which all specimens on Test Crosses were examined

Total number of plants examined in which Specimen probab. = 464 ✓

Total number of plants examined from crosses of about 1 hour = 547

Influence of Penicillium on plants that were healthy +

| Culture | no. of   | vars. | Pole  |       | Var. |      | Total | % variation |
|---------|----------|-------|-------|-------|------|------|-------|-------------|
|         |          |       | Y     | g     | T    | Y    |       |             |
| 66656   | x 6638   | 7     | 442   | 865   | 785  | 433  | 2525  | 24.6        |
| "       | x 6701-2 | 1     | 60    | 140   | 120  | 91   | 411   |             |
| 66666   | x 6638 H | 6     | 371   | 602   | 601  | 382  | 1956  | 38.1        |
| 6670E   |          | 4     | 168   | 441   | 403  | 171  | 1183  | 28.6        |
| 6673G   |          | 4     | 277   | 482   | 450  | 260  | 1469  |             |
| 6674F-3 |          | 1     | 115   | 91    | 127  | 43   | 376   |             |
| 6674F-4 |          | 1     | 112   | 72    | 119  | 61   | 364   |             |
| 6674F   |          | 2     | 108   | 229   | 233  | 89   | 659   | 30.0        |
|         |          | 26    | 1653  | 2922  | 2838 | 1530 | 8943  | 35.5        |
|         |          |       | 44914 | 44524 |      |      |       |             |
| 1)      |          |       |       |       |      |      |       |             |
| 66800   | 2nd gen. | 100%  | 100%  | 100%  | 100% | 100% | 100%  | 100%        |
| 2)      |          |       |       |       |      |      |       |             |
| 6. 13   |          | 7     | 100   | 100   | 100  | 100  | 700   | 23.9        |

66080-3 66080-4 (66080-8) Sh2/a, Sh2/rf 66080-14 Sh2/rf  
20 Sept 19

|                                |                                 |     | Date | var | color | size |        |
|--------------------------------|---------------------------------|-----|------|-----|-------|------|--------|
|                                |                                 |     |      | Sh2 | Sh2   | rh2  |        |
| 66047-3                        | 6632-8                          | and |      | 131 | 0     | 104  |        |
| 6634R-4                        | 6604C-3                         |     |      | 62  | 0     | 54   | 1 pair |
| 6613B-2                        |                                 |     |      |     |       |      |        |
| 910 (519R) 184/a, b, c 6604C-3 |                                 |     |      | 266 | 0     | 108  |        |
| 6666 (6) -                     | 910218 fm. + 6604C-3            |     |      | 71  | 86    | 164  | 1 pair |
| 6673G-0                        | + 6604C-3                       |     |      | 53  | 48    | 101  |        |
| 6683E (6) -                    | " "                             |     |      | 86  | 98    | 225  |        |
| 6604C-3                        | * 66080-8 (66080-14) a, b, c, d |     | Pale |     |       |      | color  |
| 6604C-3                        | * 6666E tur                     |     |      | Sh2 | Sh2   | rh2  | size   |
|                                |                                 |     |      | 17  | 11    | 245  | 131    |
|                                |                                 |     |      | 43  | 17    | 72   | 55     |

6693 H-2  $\alpha_{\text{H}_2}$  ( $\approx$  119 H-2, 21.3 J)  $\approx$  1.4  $\mu$   $\text{Hz}$   $\text{K}^{-1}$   
is open

| ♀                          | Pale Sh 2 | var Sh 2 | color    |
|----------------------------|-----------|----------|----------|
|                            | Y- 4      | Y- 4     | sh tip   |
| 6665 G-19±<br>6666 G(4)±   | 61<br>4   | 26<br>1  | 63<br>6  |
| 6666 H-10±<br>" 13± "      | 56<br>41  | 38<br>51 | 92<br>91 |
| 6665 G+H WSCWU<br>6666 G+H | pale      |          |          |
| 6665 G-9±<br>" G(4)±       | "         | "        | 0 0 0    |
| 6666 H(9)±                 |           |          |          |

## Testing for Spm. types

I. pale.       $a_1^{any\ state} Sh_2 / a_1^{any\ state} Sh_2$       Tests:

1. by  $a_1 Sh_2$  tester stock - all pale

2.  $\frac{1}{2} + \text{unrecd}$

3. Intercrosses between states - from pale plants = all pale

4. to  $a_1 Sh_2$  derived from Spm carry plants - Tests

State 5718 -

[State 5719A-1]

[State 5719A-2] -

[State 5996-4]

State 5700A Normal = 6701 (2)  $\left\{ \begin{array}{l} \frac{1}{2} \text{ Spm} = 2 \\ \frac{1}{2} \text{ no Spm} = 2 \end{array} \right.$

[State 5999 (letho)]

[State 5714 F.]

E.

(any state)

II. pale.       $a_1^{any\ state} Sh_2 / a_1 Sh_2$

1. By  $a_1 Sh_2$  stock - 1 pale  $Sh_2$ ; 1 colored  $Sh_2$

2.  $a_1^{any\ state} Sh_2 / a_1 Sh_2$  pale = 2 pale  $Sh_2$ ; 1 pale  $sh_2$ ; 1 colored  $sh_2$ .

3.  $a_1^{any\ state} Sh_2 / a_1 Sh_2$  Var. 07

or 1 Spm = 1 pale  $Sh_2$ ; 1 var.  $Sh_2$ ; 1 pale  $sh_2$ ; 1 var.  $sh_2$ ; 2 colored  $sh_2$   
With all states in ♀

or Y Spm / y + = Lethal if above any allele of Y

or Pn Spm / p + = " "

or 3 Spm = Ratio of var to pale w/ current pale ♀  
all states.

4. To  $a_1 s_1 r_2$  Spur no Spur from parent having Spur  
 1 pale shr<sub>2</sub> to 1 colored shr<sub>2</sub> if no Spur in  $a_1 s_1 r_2$ -plant  
 pale and very much elongated Spur in  $a_1 s_1 r_2$ -plant

$$\text{state } 5719A-2 = 6693F$$

$$\text{state } 5996-4 = 6704C$$

$$\text{state } 5700A = 6701 \textcircled{1} 6702 \textcircled{2}$$

$$\text{state } 5999 = 6707C.$$

$$\text{state } 5714F = 6642B [s_1 s_1]$$

III

<sup>own state</sup>  
 $a_1 s_1 r_2 / a_1 s_1 r_2$  variegated

1. by  $a_1 s_1 r_2$  from stock - reg pale + var. Ratio; bulbifer;

(state 5719A-1)  
 2.  $a_1 s_1 r_2 / a_1 s_1 r_2$  pale plant -  
 pale shr<sub>2</sub>; var shr<sub>2</sub>; pale shr<sub>2</sub> to var. shr<sub>2</sub> : colored shr<sub>2</sub>  
Ratio; bulbifer.

3. By Diff state  $s_1 r_2 / a_1 s_1 r_2$  shown for state Pale  
 Segregations - 2 tylex of pale - ratio, bulbifer  
 2 tylex of var. - ratio, bulbifer

IV

$a_1 s_1$  var plant - pale sector.

Pollen from pale sector to  $a_1 s_1 r_2$  = all pale in shr<sub>2</sub>

" " var pollen tested to  $a_1 s_1 r_2$  =

Consider -

1. Pollen from pale sector vs var. sector
2. 6701(2) - to  $a_1\text{sh}_2$ ; to  $a_1\text{sh}_2$  Spm; to  $a_1^{un}(5719A-2)$  Spm  
to  $a_1^{un}(5719A-1)$  Spm and no Spm
3.  $a_1^{un}\text{sh}_2/a_1\text{sh}_2$  no Spm to  $a_1^{un}\text{sh}_2/a_1\text{sh}_2$  Spm  
to " " " no Spm {
4.  $a_1^{un}\text{sh}_2/a_1\text{sh}_2$ , Spm to  $a_1^{un}\text{sh}_2/a_1\text{sh}_2$  nates others than  $5719A-2$   
 $(5719A-1)$  }
5. Gear sectors
6. pale mutants of 5720 x  $a_1^{un}$  Spm;  $a_1\text{sh}_2$  Spm.
7. Delayed action Spm - 6685 cultures 6675
8. Spm-w - (6688C $\oplus$ E x 6702G E $\oplus$ F)
9. Spm number in progeny of 1 Spm, 2 Spm, 3 Spm parent
10. Ongent plant 1 + 1/2 Spm; Pr Spm/pr +
11.  $A_1$  mutants - 6638B(6) 6706B(3)
12. High rate of reversion - 6707 Cultures
13. Var plants from pale kernels. Pale plants from var. Kernels
14. 6675 - all

Homozygous White. No Spur

a<sub>1,m1</sub> (5718) Sh<sub>2</sub> y p<sub>1</sub> w<sub>4</sub> = 6638 A

a<sub>1,m1</sub> (5719A-1) Sh<sub>2</sub> Y p<sub>1</sub> w<sub>4</sub> = 6641 A, 6642 A  
y p<sub>1</sub> w<sub>4</sub> = 6641 B

" (5719A-2) Sh<sub>2</sub> Y p<sub>2</sub> w<sub>4</sub> = 6643

" (5700A) Sh<sub>2</sub> y p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> = 6701 (2) ab.

a<sub>1,m1</sub> (5719A-1) ab<sub>2</sub> / a<sub>1</sub> ab<sub>2</sub> no Spur

6662 C yy p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub>

6675 G yy p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub>

6678 yy p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub>

6669 C yy p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub>

a<sub>1,m1</sub> (5719A-1) ab<sub>2</sub> / a<sub>1</sub> ab<sub>2</sub> Spur

6666 E Y Spur / y + p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub>

6669 B - no Spur

6671 E Y y p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub> 1 Spur

6673 F Y y p<sub>1</sub> p<sub>2</sub> 1 Spur

6680 D yy p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub> 3 Spur

6690 yy p<sub>1</sub> p<sub>2</sub> w<sub>4</sub> w<sub>4</sub> 1 Spur